

## Towards a Materialist History of Music: Histories of Sensation

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### The Materialist Turn

With the death of Foucault in 1984, investigations of the body's social construction, the body "as object and target of power," proliferated across humanist disciplines (Foucault 1977, 136). Methodologically, these were reliant on text criticism, the scrutiny of source documents, and the silence of historical objects. Approaches to knowledge about our physical matter have remained traditionally rooted in this sense, relishing the afterglow of a long-running and professionally captivating "linguistic turn" in academe that sought to understand all human thought and activity as structured by, and analogous to, linguistic systems. Alongside this text rootedness, an umbrella of alternative approaches emerged from the counterimpulse to seek sources of knowledge from the raw physicality of the subject and its modes of sensory communication; here we might look to the "materialities of communication" from first-generation media theorists (Gumbrecht and Pfeifer 1994), "thing" theory (Brown 2001), "affect" theory (Massumi 1995, 2010), and "new materialism" more broadly, including Bruno Latour's argument that "objects too have agency" (Latour 2005; Gell 1998), and the corollary that matter itself—including our biological mass—is comprised of animate agents independent of human cognition, intellectual freedom, and intentionality, that is, those cherished threads running through the woof of intellectual history (Coole and Frost 2010; Bennett 2010).



As a performing art, music—so often a latecomer to such movements—has been well placed to embrace this materialist turn. Examples have tended to focus on the performing and listening subjects, taking in the historically tactile body and its physiological encounters (Davies 2014), tapping feet and “genuine neurological misfire” among the audience (Abbate 2004, 535), the orchestra as “technical assemblage” manipulating timbre (Dolan 2013, 4), the nineteenth-century “corporeal ear” (Steege 2012), the physical encounter with manuscripts and meanings written into the physicality of text production (Dillon 2002 and 2016; van Orden 2015), as well as autoethnographic readings of bodies as a form of criticism (Le Guin 2005). With this, it seems a methodological roadmap is being set out. But we may ask: where can a focus on material bodies take us beyond theories of matter, presence, vicarious experience, and its suppositions?

Quite far, as it happens.

With a similar focus on physical encounters and the limits of the body, the somatic force of sound has become centrally relevant for sound studies, deaf studies, and disability studies in recent years. And it has become relatively uncontroversial to argue that an artist’s physical and sensory capacity relates both to the art he or she produces and his or her way of perceiving it. For historians, such knowledge is welcomed with few caveats as a fully traceable facet of cultural history. Writers of all stripes, and separated decades apart, have interpreted known mental or physical conditions deterministically in this manner:



- Isaiah Berlin suggested that J. G. Hamann was cognitively incapable of organizing his thoughts when writing, so the entire “turbid and chaotic” aesthetic of genius within the literary *Sturm und Drang* movement appears a rationalization of this inability (Berlin 2000, 340);
- Jacqueline Waeber suggests that, following an accident in 1765, Jean-Jacques Rousseau was plagued by continuous polyphonic buzzing in his ear, a condition that contributed to his advocacy of *unité de Mélodie*, wherein musical textures should remain subservient to a single, clearly perceptible melodic line (Waeber 2009, 79–82);
- Medical researcher Michael F. Marmor recently modeled the visual impairments of Degas (retinal disease) and Monet (cataracts) in their later lives, positing a causal relation to the artists’ late works (Marmor 2006, 1769);
- In a reflexive turn, Joseph Straus has applied a theory of disability to the analysis of *Formenlehre* principles, where harmonic “abnormalities” in sonata form movements by Schubert and Beethoven become explicable by the disease and aberrant physical conditions of their composers (Straus 2006).

Disparate as these approaches are, each is grounded in a theory of embodied cognition wherein individuals experience and interpret the world differently through the idiopathology of their bodies; correspondingly everything from spatial metaphor to the visual spectrum is experienced as an interpretation thereof, with direct implications for the art each individual produces. What differentiates such approaches from the nineteenth-century cliché of “life and works,” where the art created poetically reflects the life lived, is the focus on matter and empirical difference.



Spurred by this material turn and a post-Kittlerian critique of the body as technological assemblage, a history of music and its sounds implicates the ear, both as an object in the history of ontology and—more often—the point of access to sonic events for a history of spectatorship. Existing investigations into the history of aurality have straddled this divide (Sterne 2003; Steege 2012; Hui 2010; Erlmann 2010; Jackson 2005; Gouk 1999), and an outcome of such approaches has been the desire to exceed mere empiricism, the ear as inert, physiological object, by embracing the “deep interpenetration of fact and value, objectivity and affect, and most of all—science and music.” (Erlmann 2010, 25).

And this brings me onto the particular subfield of research I’d like to propose as consequential today. Investigating the history of music poses two very particular problems in light of the above. First, modes of historical listening emphatically resist scrutiny because the only unmediated index of experience has vanished. The experience of historical listening remains virtually unknowable, a kind of aesthetic secret; the same is true of historical reading, historical looking, and so on. Diary entries, conversations, books, and concert reports inscribe one mode of reaction, but at a sensorial level, we cannot know how it felt or how listeners perceived their physical reactions. While sound recording technology has captured a narrow material trace since 1857, historical ears have decayed to dust. Their psychological trace is forever secondary; what (and how) individuals heard is the province of memory and only recordable in a different medium whose very quality of difference compromises the validity of any written historical “record.”

If sensory impressions of sound (or any other sense) are irretrievable, empirically



speaking, the humanist method of treating sense perception as an idea with its own history is perfectly defensible. Here the history of sensation becomes an only “apparently suprahistorical subject” (Jütte 2004, 8). Such a view breaks with the assumption that sense perception is unchanging, a priori, natural—a facet of medical knowledge insulated from “culture.” To regard it as such would be to adhere to a nature/culture division that uses the notion of unchanging Nature to create arguments about social construction. This arguably impoverishes both concepts. Taking the example of audition, it also denies the anthropocentric nature of sound, whose vibrations are only identifiable as sound when they strike an ear. As Jonathan Sterne once put it: “human beings reside at the center of any meaningful definition of sound” (Sterne 2003, 11).

But to what extent would it be possible to recover the history of sensation, and more specifically, knowledge of historical sense perception in ways that are both accurate and informative? On this platform, I’d like to propose two frontiers worthy of critical consideration within historical musicology.

## Frontiers

### *Frontier 1: Lost Sensations*

The history of sensation can inform how we interpret historical sounds. But as we have no phenomenological claim on the experience of past individuals, this history would need to rely on the history of *theories* of sensation, that is, historical understandings of sense acuity and its role in perception.



## *Frontier 2: Historical Soundscapes*

To what extent, if at all, can we utilize historical data to simulate lost sounds via technologies of immersive new media? I pose this as an open question for now.

### **1. Lost Sensations**

Within an empiricist tradition, sensation is our exclusive link to the world. It defines what we ordinarily consider to be reality, that is, that to which we have a constitutive blindness: what we don't notice when we see or hear it. The enveloping tactility of auditory sensation also defines our experience of the present—for Walter Ong, sonic sensations relate quintessentially to “present actuality rather than to past or future” (Ong 1967, 111). As is well known, the identification of sensation with cognition is traceable across a pantheon of writers, from John Locke in the late seventeenth century (“Ideas in the Understanding are coeval with Sensation”) to the young Marx and Ludwig Feuerbach in the mid-nineteenth century, where “truth, reality, and sensation are identical” (Locke 1690, 44; Marx 1964, 141; Feuerbach 1986, 51). In such a metaphysics of sensation, disembodied thought, cognition without a body, is anathema.

Within a musical sphere, sensitivity to auditory vibrations defines the limits of one's auditory environment, the intensity of sounds we hear, and the register of pleasure or



discomfort we might take from an experience. It also circumscribes the auditory memory that remains. As intimated above, however, all too often music history is deaf. We privilege objects, images, and documents above more tangible and tactile qualities of experience because we lack the means to retrieve these sensations without distorting mediation.

A challenge for historical musicologists and historians of science is to engage this quandary by drawing on contemporary theories of sensation to inform a reception history of music, as outlined above; that is, to bring contemporary physiological and anatomical knowledge in line with aesthetic events and putative sensory activity. Berlioz's interest in the vitalist theories of medical physiologist Marie-François-Xavier Bichat would be one example for the early nineteenth century (Raz 2015), research into the perception of sound by deaf people as somatic stimuli would be another for the early twenty-first century. This is not to argue that a theory of sensation from one period (which we now decry as inaccurate) will tell us how sonic vibrations impacted the body of a listener at that time any more accurately than a theory from another epoch; but it offers a site of contemporary understanding for the experience of sound for that period. Here we may invoke the so-called Thomas theorem, namely, that "if men define situations as real, then they are real in their consequences." Admittedly, such a method represents a very specialized "site of understanding" that may have been neither widely shared nor accessible. But on the basis that knowledge and ideas become sedimented in ways that exceed what historical texts can convey, and medical knowledge was not routinely



subject to censorship, relations between the specialised and the everyday can reasonably be held in abeyance in such a method.

Just as the flowering of studies into the history of music theory has uncovered sedimented epistemologies of music (and their relation to contemporary composition), so the history of physiology and sense acuity may be able to serve a similar purpose for particular cases in the history of performed works (and how people experienced them). Such an approach would in effect ventriloquize a dialogue between contemporary interlocutors, who may or may not have communicated, in which knowledge about sensory communication informs an intellectually broadened reception history of music. Of course, the requirements of empiricism haunt any such method, and its historical rigor needs probity. But against such hesitations, it seems the suasive power of medical knowledge remains an untapped resource for each period.

A mini-case study may offer an idea of how these ideas might work in practice.

### *Czolbe*

A striking case—coeval with Helmholtz’s research into the physiology of the ear at Bonn University (1855–1858)—is Heinrich Czolbe, perhaps the most fanatical academic physician of the nineteenth century to pursue a worldview exclusively through the principle of sensation. Czolbe’s Sensationalism (*Sensualismus*)—a monist stance associated principally with his *Neue Darstellung der Sensualismus* (1855)—argued that





sensation or sensory qualities are the effect of stimuli propagated mechanically in precisely the form in which they are created and received, that is, unchanged (Czolbe 1855, 13–14); hence the quality of sound (or color, touch, or heat) is somehow inherent in the very form of its propagation along nerves. [Friedrich Lange, the leading mid-century historian of materialism, would impugn this as one of several “incurable weaknesses” of Czolbe’s philosophy (Lange 1877, 2: 291).]

Where sensation stimulates imagination indirectly, as in the case of music that might prompt us to think of images or colors, this steer becomes a determinate process; for Czolbe: “the length or speed of [vibratory] movement must be the same in the imagination as in perception” (Czolbe 1855, 46). Two essays on the new sensory experience of Richard Wagner’s Romantic operas—both well known to Wagner scholars—frame the publication of Czolbe’s theory and are arguably substantiated by the very principles it claims to advance. Franz Liszt (1852) and Charles Baudelaire (1861) both invoke an audiovisual sense acuity when discussing the Prelude to *Lohengrin* in which listeners seemingly experience the presence of light and space, distantly reflecting associations of the Holy Grail, through the high frequencies of the upper strings. Listen to the music here: <https://www.youtube.com/watch?v=xOETfODf8r4>. For Liszt:

Wagner . . . displays to our gaze the dazzling temple built of incorruptible woods, whose walls are sweet-smelling, and doors of gold, whose lintels are of greenish chysolite, whose columns are of opals and partitions of cymophane. . . . Not in its imposing structural reality, but as if sparing the weakness of our senses, he shows it to us first



reflected in blue waters or shimmering as though in an iridescent haze. / The effect at the outset is of a broad slumbering surface of sound, an ethereal haze spread out before us, so that our uninitiated eyes may see there the sacred vision. (Liszt [1851] 1989, 32-33)

Baudelaire recorded his own experience of listening to the Prelude and proceeds to marvel at the commonality between his, Wagner's, and Liszt's visions:

Soon I became aware of a heightened brightness, of a light growing in intensity so quickly that the shades of meaning provided by the dictionary would not suffice to express this constant increase of burning whiteness. Then I achieved a full apprehension of a soul floating in light, of an ecstasy compounded of joy and insight, hovering above and far removed from the natural world. . . . Even if the [similarities between visions of the music] were few in number, they would still be proof enough, but by good they are superabundant and striking even to excess. (Baudelaire 1972, 329–30)

If we take both authors at their word, these accounts can be read as a kind of knowing through sound, an acoustemology (= “acoustic epistemology”), in which the opera's subject of a medieval Grail knight becomes almost tactile, a matter of “sensory perception” in the same way that, for Czolbe, even abstractions such as mathematical axioms are sensory perceptions. “The only thing to eliminate” from this worldview, he explained, “is what is in itself or through its constituent properties not perceptible” (Czolbe 1855, 1, 39).



One broad hypothesis emerging from these statements might be that Liszt and Baudelaire are willfully experiencing sense modalities in new combination. Is Liszt's "listening" being guided by literary experience and the "creative imagination"? Perhaps. But the enhanced sensory effort of dealing in sound images nevertheless becomes a fact of reception history. Was Baudelaire's experience of hearing the Prelude to *Lohengrin* further mediated by his reading of Liszt, whom he quotes? It would seem so. But his "full appreciation of a soul floating in light" is also a confession of multisensory elation.

Wagner, for his part, published his own program for the Prelude in 1853 in which the music depicts "a symbol of the suprasensual . . . the Holy Grail . . . a reality existing somewhere, but far beyond approach" (artfully envisaged in Henri Fantin-Latour's 1898 transfer lithograph: <https://www.annexgalleries.com/inventory/detail/10728/Henri-Fantin-Latour/Prelude-to-Lohengrin-2nd-Plate>),

About the high-frequency opening, Wagner writes:

[T]he clear blue air of Heaven seems to condense to a mysterious vision, scarce traceable by the eye of over-earthly yearning, yet holding the enraptured gaze with magic spell; in infinitely soft, but gradually more distinct outline, appears the wonder-bringing hosts of angels, descending slowly from ethereal heights and bearing in its midst the sacred vessel. (Wagner [1853] 1911, 5: 180)



There is a logical force to the argument that imagination and perception are linked by “the length of speed of [vibratory] movement,” as Czolbe put it. Wagner’s score opens with a resonant A major triad vibrating in a 4- and, later, 8-part violin texture at well-nigh its highest musically audible frequency. And Baudelaire’s impulse to validate what is common between responses to Wagner’s Prelude suggests further links to the eliminative materialist thought that denies the existence of what cannot be sensed. In other words, it may be no coincidence that Czolbe’s argument is coeval with the putative alignment of synesthetic perceptions of Wagner.

“Clear concepts” such as divine grace or moral force are only accessible via actual sensations, for Czolbe, where what is supersensible amounts to an “unclear concept”:

If we want to clarify by deduction what is unknown, this can only occur through mediation with what is known, not through what is again unknown. If someone wishes to make a fluid clear, and at the same time casts something unclear into it, one would naturally call him foolish. Yet a similar absurdity appears to reign over customary logic.  
(Czolbe 1855, 2)

The neo-Kantian flavor of this mid-century position becomes clear by comparison with Kant himself:

Physical science will never discover to us the internal constitution of things, which is not phenomenon, yet can serve as the ultimate ground of explanation of phenomena . . . these



explanations must only be grounded upon that which, as an object of sense, can belong to experience, and be brought into connection with our real perceptions, according to the laws of experience.” (Kant 1783, 167)

Against Kant’s metaphysical breadth, Czolbe sought a single principle to explain the world according to what is physiologically sensible. This involved redefining as sense-led what formerly seemed disembodied, immaterial (imaginative visions; the experience of harmony). What may seem fanciful as materialist theory turned out to harbor grains of truth: Helmholtz would argue in 1857 for the physiological basis of harmony, and in an age of program music that saw various strategies to guide listeners’ imaginations, Czolbe’s view marshalled “imagination and perception” of sonic vibrations, which amounts to much the same thing.

## 2. Recovering Lost Soundscapes

We may wonder why this foray into the history of sensory epistemology matters to us in 2017. After all, the “presence” effect of sound means that we experience forever afresh our auditory environment, its music, noise, and voices. One reason, simply put, is that by getting closer to the lost sonic experiences of the past, the historical study of sense epistemology alerts us to the changeable state of our own sense impressions in the present, which resist explication through mirror neurons and the vicarious experience of music expression.



We began from the premise that, objectively speaking, unrecorded sound is lost to history. In 1916 the philosopher Salomo Friedlaender poked fun at the Faustian belief that voices (here, Goethe's) could be reconfigured by tracing vibrations initially set in motion while the voice was speaking, which decay over time but never fully disappear (Kittler 1999, 59–68). In some cases, of course, original sound-producing objects remain. The main bell in the Elizabethan tower at the British parliament at Westminster, “Big Ben,” was cast in 1858 and has resounded more or less each hour ever since. An even greater historical ear is cast over the five old bells at Magdeburg Cathedral, which date from the thirteenth to the eighteenth centuries and continue to resound across that city, albeit using modern moving parts. While city soundscapes change as their constituent sound sources proliferate, the sound identity of the bells remains more or less constant.

Where sound recordings do exist, initiatives have sought to resurrect lost historical soundscapes (e.g., Emily Thompson's *Roaring Twenties* assembles the sounds of New York in the 1920s through video footage and registered noise complaints, including street sounds, children playing, traffic, and industrial noise:

<http://vectorsdev.usc.edu/NYCSound/777b.html>; or use them to create mashups of contemporary and historical sounds in order to explore the phenomenon of sonic communication, e.g. the *Historical Soundscape* project:

<http://www.historicalsoundscape.org>).

Similarly, when psychologist and comparative musicologist Carl Stumpf gave a lecture on “the origins of music” in 1909, he based his conclusions in part on a series of



transcriptions he made (in some cases borrowed) from wax cylinder recordings of indigenous musics from the 1890s and 1900s. A companion website for my edited translation of Stumpf's subsequent book, *Die Anfänge der Musik* (1911 / 2012), includes digitised recordings of these original cylinders, allowing readers to experience the sounds as he, Otto Abraham, and Erich von Hornbostel first heard them at Berlin University, and thus to better understand their approach to transcription:

<http://global.oup.com/booksites/content/9780199695737/audio/>.

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Some historians have argued that the “authentic” or period performance practice can offer “an adequate impression of what our ancestors were hearing,” a kind of sonic time machine that allows us to know firsthand the sound of Haydn symphonies at the court of Esterhazy, for example (Müller 2012, 449). But leading musicological voices have long defeated the idea that musical sounds created in the present have a viable claim to be the true recreation of what a performance sounded like 200 years before (Taruskin 1995; Butt 2002), and the focus has shifted to the value in the present of renewed engagement with, and greater accessibility of, history and historical thought: ‘in this sense,’ Butt explains paradoxically, Historically Informed Performance ‘can be justified precisely because the pasts to which it alludes are gone forever’ (Butt 2002, 217).

Other means of achieving similar goals may be at hand, however. Let us take industrial noise. Where data exist for historical machines, production rates, and factory size in



Victorian London, for instance, it is conceivable that digital sound engineering could create a simulacrum of the sound of a working Victorian factory floor at that time. Consider Friedrich Koenig's steam-powered printing press of 1812: such devices still exist, in replica if not as originals. By recording them during full production, and multiplying the sound image by the number of machines for a particular factory (using spatial diffusion software), one would come closer to a 3D soundscape of the printing shop floor that so energized the dissemination of print media. Doubtless, it would prove as much an exercise in imagination as the retrieval of lost sound, but it could nevertheless open a window in time for our senses where none existed previously. The sensory knowledge to which this approach gives rise amounts to the sonification of historical data.

### **Coda**

By proposing these two frontiers, I hope to have raised some eyebrows and opened some doors. I have suggested that sense perception is not an unchanging facet of medical history, but subject to cultural influences and local norms. It is this historically flexible shaping of perception above all that future research might fruitfully uncover in its various delimited contexts.







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